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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,567	03/08/2002	Wolfgang Hahn	951/50488	7047
23911	7590	01/21/2004	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			FISCHMANN, BRYAN R	
			ART UNIT	PAPER NUMBER
			3618	

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/070,567

Applicant(s)

HAHN, WOLFGANG

Examiner

Bryan Fischmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Acknowledgments

1. The Request for Reconsideration (paper 10) filed 12-04-2003 has been entered.

Specification

2. The disclosure (paper 5) is objected to because of the following:

A) The recitation of "compare technical journal" in paragraph 0004 is considered awkward and unclear.

B) Paragraph 0009 and other places in the specification recite "focal distance". This term is not considered to be adequately defined. See the 112 2nd portion of this Office Action for further discussion.

C) The recitation of "differential contrast evaluation" in paragraph 0020 is objected to as being unclear and inadequately explained.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the structure which allows the focal distance to be adjusted as recited in claims 16, 17, 28 and 29 must be shown or the features canceled from the claims. No new matter should be entered.

See the 112 2nd portion of this Office Action for further discussion of the term "focal distance".

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 19 and 21-23 are objected to because of the following:

A) Claim 19 recites "...said analyzing device includes means for performing differential contrast evaluation".

As already noted in this Office Action, the term "differential contrast evaluation" does not appear to have been adequately defined in order to be claimed. In other words, the Applicant simply recites this term with no explanation as to what kind of data processing is associated with this term.

Note that this objection will be withdrawn if Applicant can supply evidence that the above term is known to one of ordinary skill in the art at the time the invention was made. Note, however, that evidence provided that differential contrast evaluation is known to one of ordinary skill in the art at the time the invention was made may be used as prior art against the claims.

See claims 21 and 23 for an identical objectionable recitation.

Regarding the objection to claim 22, note that claim 22 is dependant upon claim 19.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 10-31 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant regards as his invention.

A) Claim 10 recites "...each camera...is adjusted to a different focal distance...".

Adequate written description for the above recitation is considered lacking due to the following:

- 1) First, the following terms are standard in photography:

field – the area in front of the camera being photographed

field depth – the distance from the camera to the furthest object being photographed

focal length – the distance from the camera lens to the focal point – the focal length affects the magnification of the object being photographed

focal point – a point on a plane at which light passing through a camera lens projects a focused image – the focal point is on a plane containing the medium, such as film or a CCD (charge coupled device) onto which the image being photographed is stored.

Since the term "focal distance" does not precisely correspond to the above generally known terms, nor is it adequately defined in the specification, the meaning of the term "focal distance", specifically, what "distance" is being referred to by this term, is considered unclear.

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Note that Section 608.01 (o) and 2173.05(a) of the MPEP requires that nomenclature used in the claims be apparent from the specification, unless it is apparent from the prior art.

Note that Section 608.01(g) of the MPEP also recites "The description is a dictionary for the claims and should provide clear antecedent basis for all terms used in the claims".

Note that the term "focal distance" has not been explicitly defined by the specification, nor has this term been found by the Examiner relating to cameras or photography. Due to this, for purposes of examination, the term "focal distance" is best understood to correspond to the term "focal length", to which the term "focal distance" is most closely associated.

Note also that the term "focal distance" is also used in some claims depending upon claim 10.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10-18, 20 and 24-30, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-255019, in view of Kodak Reference Handbook, pages 8 and 9.

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Japanese Patent 10-255019 teaches a motor vehicle sensor system for detecting an outer environment, the sensor system comprising:

at least two camera systems (CCD and infrared - see English Language Abstract) operable to image the outer environment (Figure 5); and

wherein each camera system operates in a different spectral region (infrared and non-infrared).

Japanese Patent 10-255019 fails to teach that each camera is adjusted to a different focal distance. As previously noted in this Office Action, the term "focal distance" is best understood to correspond to the term "focal length" commonly used in photography.

However, Kodak Reference Handbook, page 9 teaches that "infrared light rays, due to their longer wave length, focus in a different plane from visible light rays...better infrared pictures are obtained if the lens is extended about $\frac{1}{4}\%$ of its focal length after it has been focused for visible light". Since infrared light and visible light focus in different planes, it then follows that the focal length, or distance would not be the same for an infrared camera and a CCD camera recording visible light, as the focal length, or distance, is the distance to a plane on which the image is focused. Due to this, the Kodak Reference Handbook, page 9, recommends that the focal length of cameras photographing visible and infrared light be different, or, in other words, adjusted to different focal lengths, or distances.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize different focal distances for the CCD camera and

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infrared camera of Japanese Patent 10-255019, as taught by Kodak Reference Handbook, page 9.

Regarding claims 13 and 27, note that it is considered within the skill level of one of ordinary skill in the art to duplicate parts. See Section 2144.04 of the MPEP.

Duplicating, or adding an additional CCD camera is advantageous in that a second camera may be placed at a different location to expand the "field of vision" beyond that of the first CCD camera. A second CCD camera is also advantageous in that it may be used as a "backup" in the event of a casualty to the first CCD camera.

Regarding claims 14 and 15, note that the CCD camera of Japanese Patent 10-255019 is used to detect a visible image in front of a vehicle. A "visible image in front of a vehicle" may be considered to be within a "close range", particularly when compared with more distance objects such as the sky, the moon, the horizon and distant mountain ranges.

Regarding claims 16, 17, 28 and 29, note that Japanese Patent 10-255019 teaches that the CCD camera detects visible images and that the infrared camera detects high luminance parts such as tail lights. This suggests that the camera system is to be used at night, since a vehicle does not use tail lights during the day. Note that at night, the only visible light is the light that is reflected from the vehicle's headlights.

Regarding claims 18, 20 and 30, see reference numbers 14, 16 and 18 of Figure 1 of Japanese Patent 10-255019 and the English Language Abstract.

Regarding the recitation of "vehicle body" in claim 24, note the recitation of "self vehicle" in the English Language Abstract of Japanese Patent 10-255019. Regarding

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the recitation of "at least two camera systems arranged in a forward portion of the vehicle body for imaging areas in a traveling direction of the motor vehicle", see Figures 3 and 5 of Japanese Patent 10-255019 and the recitation of "CCD camera acquires a visible image in front of a vehicle and the image is binarized by an image capture board...an infrared image that is acquired by an infrared camera...is supplied to the board...A threshold for binarization of the infrared image is decided on the temperature information of parts..." in the English Language Abstract of Japanese Patent 10-255019. From this, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the infrared camera was viewing objects in front of the vehicle, as is the CCD camera, since both the CCD and infrared images are sent to the same board in order to recognize vehicles at night.

9. Claims 19 and 21-23, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-255019 in view of Kodak Reference Handbook, pages 8 and 9, as applied to claim 18 and 20, and further in view of European Patent 454516.

The combination motor vehicle of Japanese Patent 10-255019 fails to teach the use of differential contrast evaluation.

However, European Patent 454516 teaches a motor vehicle sensing system including the use of two cameras including one in the visible range and the other in the infrared range and the use of differential contrast evaluation to evaluate objects in the visual range (see paragraph 0005 of paper 5). Differential contrast evaluation is

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advantageous in that the use of differential contrast evaluation facilitates the processing of the light signals by an analyzer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize differential contrast evaluation in the combination motor vehicle sensing system of Japanese Patent 10-255019, as taught by European Patent 454516.

Regarding claim 22, see reference numbers 14, 16 and 18 of Japanese Patent 10-255019 and the English Language Abstract.

10. Claim 31, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-255019 in view of Kodak Reference Handbook, pages 8 and 9, as applied to claim 24, and further in view of Japanese Patent 4-164281.

The combination motor vehicle of Japanese Patent 10-255019 fails to teach a display to provide environmental information to a driver.

However, Japanese Patent 4-164281 teaches a motor vehicle sensing system including the use of a CCD camera to provide an image on a screen (see reference number 2a and the English Language Abstract). A display providing environmental information to a driver is advantageous in that the driver may see objects in front of him on the display that are not visible to him, especially at night or in bad weather.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a display in the combination motor vehicle sensing system of Japanese Patent 10-255019, as taught by Japanese Patent 4-164281.

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Regarding the claim 31 recitation "...display...arranged within a driver's viewing range...", it is noted that Japanese Patent 4-164281 does not explicitly state that the display is within the driver's viewing range. However, it would have been obvious to one of ordinary skill in the art to locate the display within the driver's range, as otherwise, the display would be of no use to the driver.

Response to Applicant's Remarks (paper 10) and Examiner's Comments

11. In paper 10, the Applicant has traversed every objection and rejection set forth in the previous Office Action (paper 9). All objections and rejections set forth in the last Office Action (paper 9) have been repeated in this Office Action with the exception of the 112 1st rejection of all claims relating to the term "focal distance" and one specification objection as discussed below. Since a 112 2nd paragraph rejection was also set forth in the last Office Action regarding the term "focal distance", only the 112 2nd paragraph rejection of all claims relating to this term has been set forth in this Office Action, as the Examiner believes that the lack of clarity regarding this term is most appropriately set forth in a 112 2nd paragraph rejection.

Applicant's arguments against all other objections and rejections, where arguments have been set forth, are addressed as follows:

a) On page 3 regarding the specification objections the Applicant recites "With regard to the assertion that the first paragraph should indicate whether the international application was published under PCT Article 21(2) in English, the Applicant respectfully submits that this is not a requirement under...202.01 of the MPEP".

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Examiner's Response – Since the Instant Application is a 371 National Stage Filing, as opposed to continuation of the international document under 35 USC 120, the Examiner agrees that the Applicant is not required to state in the first paragraph whether the international application was published in English.

Accordingly, this objection has been removed from this Office Action. The Examiner appreciates the Applicant clarifying the Examiner's mistaken understanding concerning this issue.

b) On pages 3 and 4 regarding the specification objections, the Applicant recites "For purposes of examination, the pending Office Action assumes that the term 'focal distance' corresponds to the term 'focal length', a standard term in photography referring to the distance from a camera lens to a focal point... The Applicant respectfully submits that this understanding is inconsistent with the teachings of the present specification... Throughout the specification, reference is consistently made to detecting or perceiving objects at a distance in front of the vehicle... For example... paragraph [0009], the specification notes that the infrared camera 'takes over the environmental detection in the remote range because it is suitable for day and night use...'... This paragraph goes on to note that the CCD camera is adjusted to operate in a 'close range'... Paragraph [0011] is consistent referring to 'camera systems with different focal distances' and improving detection 'in both the close and remote ranges'... The present specification thus defines 'focal distance' in terms of distance from the camera to a target range in front of the motor vehicle, not the distance from the camera lens back to

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the focal point at which the image is deposited... The Applicant further notes that the 'focal distance' is not a reference to a specific distance but rather a range of distance..."

Examiner's Response – The Examiner has the following comments:

1) Since the term "focal distance" is so similar to the term "focal length", absent any explicit definition of the term "focal distance", or "strong teachings" to the contrary, of which none were noted, it would be reasonable to equate these two terms. Note that the word "focal" in the above term clearly implies something is being "focused", as only happens when light passes through a lens, as opposed to reflected light from an object traveling a distance from the object to a lens, as Applicant appears to be setting forth above. Note that while Applicant may be his or her own lexicographer, a term may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill* 161 F.2d 367 USPQ 482 (CCPA 1947). The term "focal distance" is given a meaning, according to Applicant's arguments above, of the distance, or range of distances, from an object to a lens, while the accepted meaning is the distance from a lens to a recording medium. Note that at either end (object or lens) of this "focal distance", utilizing Applicants intended meaning of this term, nothing is being "focused", such as would occur at a "focal point" on one end of the "focal length", so this term would appear to incorrectly used by Applicant.

2) While Applicant's arguments above could possibly lead one to conclude that the term "focal distance" may be associated with the distance between an object and a lens, as opposed to a distance between a lens and a recording medium, it is also possible that one could also conclude that in order to perceive objects at a range of

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distances in front of a vehicle that different "focal distances" corresponding to the distance between the lens and the recording medium of each camera may be utilized in order to affect the magnification of each camera lens, which facilitates the identification of objects in front of a vehicle.

Note also that Applicant has offered no portion of the disclosure that explicitly or clearly defines the term "focal distance" as being the distance between an object and a lens, this is only at best inferred. Once "inferences" are necessary to define a term, Applicant must acknowledge that reasonable people will likely draw different inferences from portions of the specification alluding to the term "focal distance".

3) Applicant notes above that the term "focal distance" is not a distance, but rather a "range". The use of the term "focal distance" which implies a single distance to mean a range of distances is considered misleading.

Note that these comments also apply to the 112 2nd paragraph rejection set forth in this and the previous Office Action, regarding the lack of clarity of the term "focal distance".

c) On pages 4 and 5 regarding the specification objection to the term "differential contrast evaluation", the Applicant recites "...the Office Action states that this term is objected to as unclear and inadequately explained... The Applicant respectfully admits that this term is well understood in the art, and requires no further definition... To this end, the Applicant has attached examples of references to this well known image enhancement technique...".

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Examiner's Response – Examination of the examples of "differential contrast evaluation" supplied by Applicant would appear to teach that differential contrast evaluation was known to those skilled in the art as of November 2003. However, the examples supplied by Applicant do not provide evidence that differential contrast evaluation was known to those of ordinary skill in the art at the time the invention was made. Therefore, the objection to the use of this term, which was undefined by the specification, is maintained.

d) On page 5 regarding the claim objections, the Applicant recites "The pending Office Action notes that claims 21 and 23 are identical... Claim 21 depends from claim 18 and claim 23 depends from claim 19...".

Examiner's Response – The Examiner was not objecting to these claims as being identical. The Examiner was just noting that claims 21 and 23 contained the identical objectionable recitation (differential contrast evaluation) as was originally set forth in claim 19.

e) On page 6, regarding the 103 rejections set forth in this and the previous Office Action, the Applicant recites "The claims are patentable over the references under...103...The... Office Action sets forth arguments in support of the...103 rejections based on the understanding of the term 'focal distance' as referring to the distance between the camera lens and the point at which an image is focused on the recording medium...however, the specification defines the term 'focal distance' in an entirely different manner...".

Examiner's Response – The Examiner offers the following comments:

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1) The Examiner disagrees that the term "focal distance" has been "defined" in the specification, as contended by Applicant above for reasons already set forth. The term has not been "defined". In contrast, as already noted, the term has only been "alluded" to, leaving the reader to infer the meaning of this term.

2) Even assuming that the Applicant has made clear what the term "focal distance" is referring to in the specification, it clearly has not been "strictly defined".

Note that Section 2111.01 of the MPEP recites "During examination, the claims must be interpreted as broadly as their terms reasonably allow...One must bear in mind that...the words in a claim are not generally limited in their meaning by what is shown or disclosed in the specification...It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language...".

From this, it is clear that the Examiner has "broadly reasonably interpreted" the term "focal distance" to mean the distance between the camera lens and a recording medium, as the term "focal distance" has not been clearly defined in the specification. Note this definition of the term "focal distance" forms the basis for all 103 rejections set forth in this and the previous Office Action.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within


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• TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Bryan Fischmann whose telephone number is (703) 306-5955. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, Brian Johnson, can be reached on (703) 308-0885. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


BRYAN FISCHMANN
PATENT EXAMINER